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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,174	06/26/2003	Wolfgang Rein	9101.00003	5186

10534 7590 06/03/2004

BLISS MCGLYNN, P.C.
2075 WEST BIG BEAVER ROAD
SUITE 600
TROY, MI 48084

EXAMINER

MCMAHON, MARGUERITE J

ART UNIT PAPER NUMBER

3747

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,174

Applicant(s)

REIN ET AL.

Examiner

Marguerite J. McMahon

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7-10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loughlin (5,661,904) in view of Hart et al (6,557,457). Loughlin shows everything except the end of the connecting rod aligned with the piston bore including a phosphatized coating that is adapted to facilitate relative angular movement between the bore extending through the connecting rod and the outer circumference of the piston pin. Hart et al teach that it is old in the art to provide a phosphatized coating on at least one of the running surfaces of the wrist pin and connecting rod bore (see abstract and column 2, lines 47-60). It would have been obvious to one having ordinary skill in the art to modify Loughlin by providing a phosphatized coating on the inside surface of the connecting rod bore and/or the outside surface of the piston pin in lieu of a conventional bushing usually pressed into the connecting rod bore, in order provide the necessary tribological properties therebetween, more simply and inexpensively.

Claims 4-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loughlin (5,661,904) in view of Hart et al (6,557,457) as applied to claims 1-3, 7-10, and 15 above, and further in view of Fangman (3,479,929). Loughlin in view of Hart et al show everything except employing a substantially trapezoidally or stepped tapering

connecting rod and bore housing. Fangman teaches that it is old in the art to provide a substantially trapezoidally tapering connecting rod and bore housing. It would have been obvious to one having ordinary skill in the art to modify Loughlin in view of Hart by providing a substantially trapezoidally tapering connecting rod and bore housing, in order to reduce the mass of the rod, while maintaining surface area connection between piston and rod (see column 1, lines 19-25 of Fangman). It would have been obvious to one having ordinary skill in the art to substitute a stepped formation for a trapezoidal formation of the tapered connecting rod, since such are art recognized alternatives known for the same purpose, as evidenced by claims 5, 6, 12, and 13 in which claims 5 and 12 cited a trapezoidal formation and claims 6 and 13 cite a stepped formation.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Loughlin (5,661,904) in view of Hart et al (6,557,457) as applied to claims 1-3, 8-10, and 15 above, and further in view of DeBiasse (4,984,544). Loughlin in view of Hart teach everything except providing side relief channels along the inner circumference of the pin bore. DeBiasse teaches that it is old in the art to provide side relief channels 68 along the inner circumference of the pin bore. It would have been obvious to one having ordinary skill in the art to modify Loughlin in view of Hart et al by providing side relief channels, in order to accumulate lubricating oil to lubricate between the surfaces of the pin and bore.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Note the references of Loughlin ('034), McKone, Kottman, and

Blackshear, which all show a reduced diameter at the central portion of the piston pin, the references of Kronstein ('088), Umeha et al, and Kronstein ('752) which all discuss the advantages of phosphatized coatings in improving corrosion resistance and wear, and the Kemnitz et al reference which shows an additional tapered connecting rod and housing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marguerite J. McMahon whose telephone number is 703-308-1956. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yuen Henry can be reached on 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MARGUERITE MCMAHON
PRIMARY EXAMINER